

REMARKS/ARGUMENTS

This Amendment is in response to the Office Action mailed April 19, 2007. Claims 1-8 and 11-22 were pending in the present application. No claims have been amended, canceled, or added. Accordingly, claims 1-8 and 11-22 remain pending in the present application after entry of this Amendment. Reconsideration of the rejected claims is respectfully requested.

35 U.S.C. §103(a) Rejection of Claims 1-8 and 11-22

Claims 1-8 and 11-22 are rejected under 35 U.S.C. §103(a) as being unpatentable over Gole (U.S. Patent No. 7,171,452, hereinafter "Gole"). Applicants respectfully submit that Gole does not teach or suggest the features of these claims.

Embodiments of the present invention are directed to techniques for installing software on a storage device controlling apparatus. (Specification: pg. 3, lines 2-7). According to one embodiment (as illustrated in Fig. 1 of the present application), a storage device controlling apparatus 100 includes a plurality of channel controllers 110, a plurality of disk controllers 140, and a managing terminal 160. Channel controllers 110 are communicatively coupled to a number of information processing apparatuses 200 via an external network (*e.g.*, LAN 400 or SAN 500). Additionally, channel controllers 110 are communicatively coupled to disk controllers 140 and managing terminal 160 via an internal network 151. In various embodiments, internal network 151 is used to install software, such as an operating system or firmware, from managing terminal 160 onto channel controllers 110 and/or disk controllers 140. (Specification: pg. 34-42). In this manner, the functionality of channel controllers 110 and disk controllers 140 may be easily upgraded or modified.

Accordingly, independent claim 1 recites:

A method of installing software on a storage device controlling apparatus, said method comprising:

writing software for enabling a file access processing section of a channel controller of the storage device controlling apparatus to function,

wherein said storage device controlling apparatus comprises:

a plurality of channel controllers, each having a circuit board on which are formed a file access processing section receiving requests to input and output data in files as units from an information processing apparatus via a first network and an I/O processor outputting I/O requests corresponding to said requests to input and output data to a storage device;

a plurality of disk controllers executing input and output of data into and from said storage device in response to the I/O requests sent from said I/O processor; and

a second network coupling said plurality of channel controllers and said plurality of disk controllers so as to be able to communicate with each other,

wherein said software is written into said storage device by communicating with said channel controller via said second network.

(Applicants claim 1, emphasis added).

Applicants submit that such features are not disclosed or suggested by Gole.

Gole is directed to a system for monitoring the boot status of a previously failed storage system in a cluster of storage systems. (Gole: Abstract). As shown in Fig. 1 of Gole, this system includes a cluster 130 comprising a red storage system 200, a blue storage system 200, a red disk shelf 112, and a blue disk shelf 114. Red storage system 200 and blue storage system 200 are connected to each other via a cluster interconnect 110. Red storage system 200 and blue storage system 200 are also connected to red disk shelf 112 and blue disk shelf 114 via links 166, 118, 120, 122. As best understood, cluster interconnect 110 allows one storage system to monitor the boot status of another, connected storage system that has failed and restarted. (Gole: col. 8, lines 32-52). Thus, if the boot process of the restarted storage system does not progress normally, the monitoring storage system may implement failover processing. (Gole: Fig. 5, steps 530, 535).

Applicants submit that the system of Gole is very different from the invention recited in Applicants' claim 1. For example, Gole fails to teach anything about a second network coupling a plurality of channel controllers and a plurality of disk controllers, where software is written to a storage device by communicating with a channel controller via the second network as recited in claim 1.

The Office Action asserts that Gole teaches a second network coupling a plurality of channel controllers and a plurality of disk controllers because "the disk shelves and storage systems [of Gole] may be operatively interconnected in any suitable switching network

topology.” (Office Action: pg. 3, quoting Gole: col. 3, lines 51-53). Thus the Examiner apparently construes the links between red storage system 200, blue storage system 200, red disk shelf 112, and blue disk shelf 114 as corresponding to the second network of claim 1. Applicants respectfully disagree.

At best, the cited section merely discloses a network coupling a plurality of storage systems (e.g., red storage system and blue storage system 200) and/or a plurality of storage devices (e.g., red disk shelf 112 and blue disk shelf 114). Gole makes no reference to a storage device controlling apparatus including a second network, where the second network couples a plurality of channel controllers and/or and plurality of disk controllers. Accordingly, Gole fails to teach or suggest “a second network coupling said plurality of channel controllers and said plurality of disk controllers so as to be able to communicate with each other” as recited in claim 1.

Even if, *assuming arguendo*, Gole could be construed as disclosing a second network coupling a plurality of channel controllers and a plurality of disk controllers, Gole still fails to teach anything about writing software to a storage device by communicating with a channel controller via the second network as recited in claim 1. The Office Action asserts that Gole teaches writing software because Gole discloses executing software code or a storage operating system on the processors/adaptors of a storage system 200. (Office Action: pg. 4, quoting Gole: col. 4, lines 36-67 and col. 6, lines 57-59). However, these sections merely describe running software on a storage system. Applicants submit that Gole makes no reference to the concept of writing software to a storage device. Further, Gole makes no reference to the specific concept of writing software via a second network coupling a plurality of channel controllers and a plurality of disk controllers. Accordingly, Gole fails to teach or even suggest “wherein said software is written into said storage device by communicating with said channel controller via said second network” as recited in claim 1.

For at least the foregoing reasons, Gole does not render obvious Applicants’ claim 1. Thus, Applicants respectfully request that the rejection with respect to claim 1 be withdrawn.

Independent claim 2 recites features that are substantially similar to independent claim 1. Merely by way of example, claim 2 recites in part “a second network coupling said

plurality of channel controllers and said plurality of disk controllers so as to be able to communicate with each other, wherein said piece of firmware is written via said second network.” Accordingly, claim 2 is believed to be allowable for at least a similar rationale as discussed for claim 1, and others.

Dependent claims 3-8 and 11-22 depend (either directly or indirectly) from claims 1 and 2 respectively, and are thus believed to be allowable for at least a similar rationale as discussed for claims 1 and 2, and others.

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance and an action to that end is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 650-326-2400.

Respectfully submitted,

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